

Title (en)  
MULTIFUNCTIONAL MICRO SPEAKER

Title (de)  
MEHRFUNKTIONSMIKROLAUTSPRECHER

Title (fr)  
MICRO HAUT-PARLEUR MULTIFONCTION

Publication  
**EP 2432250 A4 20140305 (EN)**

Application  
**EP 09844670 A 20090831**

Priority  
• KR 2009004876 W 20090831  
• KR 20090041345 A 20090512

Abstract (en)  
[origin: US2011243367A1] A multifunctional micro speaker including a frame; a diaphragm having an outer circumferential portion fixed to the frame; a voice coil fixed to a lower surface of the diaphragm; a first member having one side fixed to the frame and having a predetermined elasticity; a yoke fixed to the first member and comprising a receiving groove; a first permanent magnet fixed to a bottom surface of the receiving groove; a plate fixed to an upper surface of the first permanent magnet; a second member having one side fixed to the frame, spaced apart from the first member in a downwards direction and having a predetermined elasticity; and a second magnet fixed to the second member and spaced apart from the first member and the yoke.

IPC 8 full level  
**H04R 9/02** (2006.01); **H04R 23/02** (2006.01)

CPC (source: EP KR US)  
**H04R 9/02** (2013.01 - KR); **H04R 9/066** (2013.01 - EP US); **H04R 9/063** (2013.01 - EP US); **H04R 2209/026** (2013.01 - EP US); **H04R 2209/027** (2013.01 - EP US); **H04R 2400/03** (2013.01 - EP US); **H04R 2400/07** (2013.01 - EP US); **H04R 2499/11** (2013.01 - EP US)

Citation (search report)  
• [XY] US 2002061115 A1 20020523 - CHUNG SEUK HWAN [KR], et al  
• [XA] US 2002114486 A1 20020822 - FUKAWATASE TOSHIFUMI [JP], et al  
• [XA] EP 1282338 A2 20030205 - MATSUSHITA ELECTRIC IND CO LTD [JP]  
• [Y] US 6487300 B1 20021126 - LEE IN HO [KR], et al  
• See references of WO 2010131796A1

Cited by  
EP2475190A4

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR

DOCDB simple family (publication)  
**US 2011243367 A1 20111006**; CN 101888579 A 20101117; CN 101888579 B 20130227; CN 201608884 U 20101013; EP 2432250 A1 20120321; EP 2432250 A4 20140305; JP 2012518919 A 20120816; JP 5032707 B2 20120926; KR 101111894 B1 20120214; KR 20100122349 A 20101122; TW 201041413 A 20101116; TW I422239 B 20140101; TW M384481 U 20100711; WO 2010131796 A1 20101118

DOCDB simple family (application)  
**US 200913133191 A 20090831**; CN 201010105802 A 20100119; CN 201020107211 U 20100119; EP 09844670 A 20090831; JP 2011547750 A 20090831; KR 20090041345 A 20090512; KR 2009004876 W 20090831; TW 98139556 A 20091120; TW 98222293 U 20091127